

Industrial Inorganic Chemistry (E721033)

Course size (nominal values; actual values may depend on programme)

Credits 3.0 Study time 90 h Contact hrs 36.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 2) Dutch lecture 36.0 h

Lecturers in academic year 2018-2019

Sabbe, Maarten TW11 lecturer-in-charge

Offered in the following programmes in 2018-2019

	crdts	offering
Bachelor of Science in Engineering Technology (main subject Chemical Engineering Technology)	3	A
Bachelor of Science in Chemical Engineering Technology	3	A
Linking Course Master of Science in Chemical Engineering Technology	3	A
Preparatory Course Master of Science in Chemical Engineering Technology	3	A

Teaching languages

Dutch

Keywords

Industrial inorganic chemistry, industrial process chemistry, inorganic products

Position of the course

The course provides an overview of industrial inorganic chemistry, considering the production of final products from the raw materials. Chemical engineers should obtain insight in the process-technical, chemical, economic and legal aspects of industrial chemical processes, accounting for the quality, sustainability and recyclability of the final products, as well as the environmental effects, energy efficiency, safety and socio-economical context of the industrial processes.

Contents

The process chemistry and the most important properties of the quantitatively most important chemicals in the:

- production of industrial gases
- nitrogen, sulfur, chloro, alkali and phosphorous industry
- basics of metallurgy and metal recycling
- production of ceramics and construction materials

The importance, the composition, properties, product development and production of some important inorganic products, such as pigments, batteries or abrasives.

In addition topics are treated such as basic raw materials air and water, the production of industrial gasses, the processchemistry/-technology of the sulphur industry, nitrogen industry, alkali- and chlorine industry and phosphorus industry. When convenient a study excursion is introduced.

Initial competences

The course starts from certain final competences from the courses 'general chemistry', 'materials', 'inorganic chemistry', 'chemical process balances' and 'physical chemistry'.

Final competences

- 1 Show insight in the chemical and process technological aspects of the most important products in industrial inorganic chemistry and their production process
- 2 Be able to interpret and explain production schemes and flow sheets for the most

important processes of the inorganic nitrogen, sulfur, chloro-alkali and phosphorous industry and the production of industrial gases.

- 3 Understanding of the aspects environment, safety, quality, economy and sustainability in industrial processes and product development in the field of inorganic base chemicals.
- 4 Be able to implement scientific insights from different scientific disciplines to understand processes and solve technical problems.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture

Learning materials and price

Presentations are available via the electronic learning platform.

References

Büchel, Moretto & Woditsch, *Industrial Inorganic Chemistry*, Wiley, 2000.

Ullmann's Encyclopedia of Industrial Chemistry (2003). Wiley-VCH Publishers. ISBN 0-89573-151-7 (online beschikbaar via UGent-bibliotheek).

Thompson, R., ed. *Industrial inorganic chemicals: production and uses*, Royal Society of chemistry, Cambridge, 1995, 408 p.

Course content-related study coaching

Evaluation methods

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Written examination with open questions, oral examination

Examination methods in case of periodic evaluation during the second examination period

Written examination with open questions, oral examination

Examination methods in case of permanent evaluation

Assignment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Calculation of the examination mark

Final score = 0.8 E + 0.2 NPE,

with 'E' the grade for the examination and 'NPE' the grade for the non-periodic evaluation.